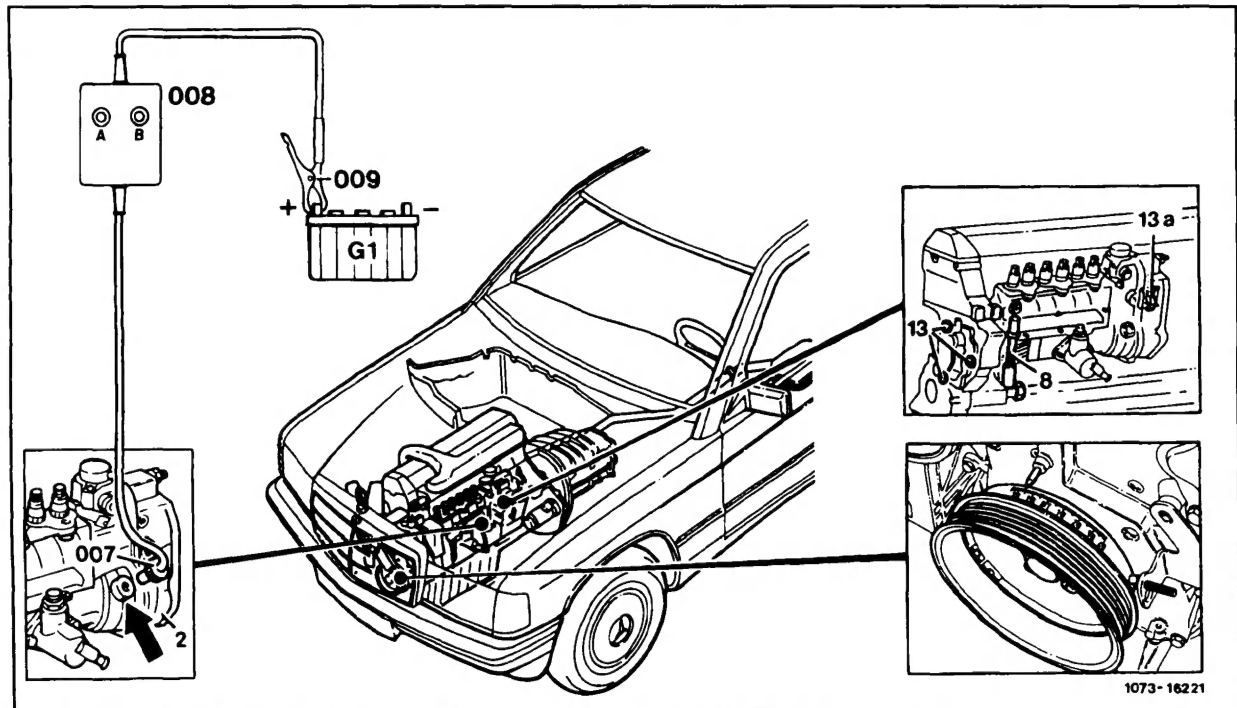


Engine 601 602 603

## Test values

Model year	Indirect injection timing (after TDC)	
	RI (reference impulse) checking value	RI (reference impulse) adjusting value
1984-89	$15^{\circ} \pm 1^{\circ}$	$15^{\circ}$
starting 1990	$14^{\circ} + 0.5^{\circ}$	$14^{\circ} + 0.5^{\circ}$

## Adjusting Injection timing (position sensor RIV method) - after checking (0760.2)



- Turn crankshaft in direction of rotation to ..... value in chart
- Injection pump mounting bolts (13 and 13A) at flange and bracket ..... loosen, 20-25 Nm.
- Indicator (008) and clamp (009) ..... connect to B +
- Pivot injection pump by turning injection timing adjustment screw (8) ..... both lamps, A and B, must light up in indicator (008)
- Adjustment screw direction
- Right = Retard injection timing
- Left = Advance injection timing
- RI (reference impulse) adjusting value: refer to chart

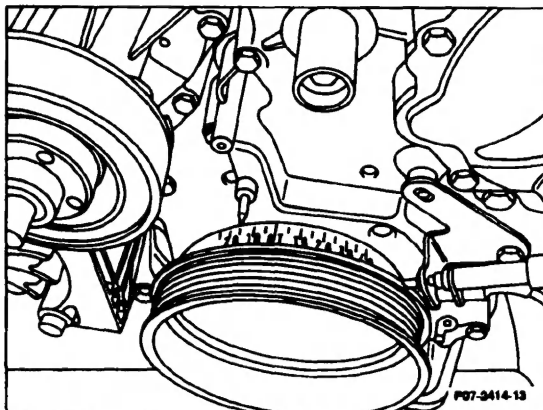
Position sensor (007) .....	remove
Plug (arrow) .....	screw in
Regulating linkage .....	check, adjust if necessary (repair instruction 30-300)
Leak check with running engine .....	perform
Engine oil level .....	check, correct if necessary

**Note:**

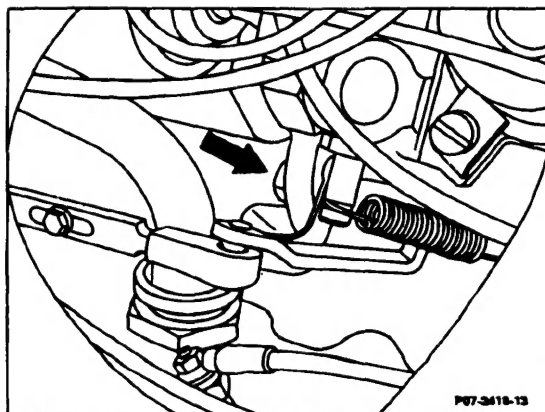
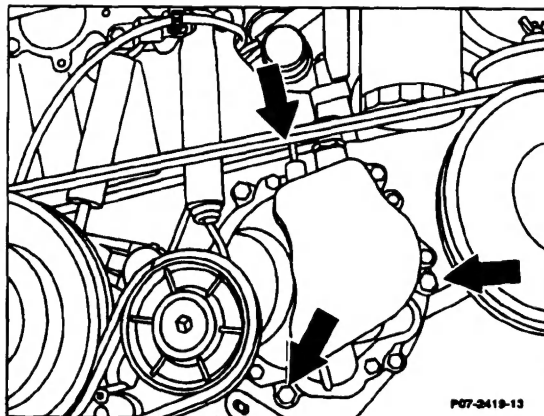
Check injection timing before adjusting (0760.2)

**Adjusting**

1. Turn crankshaft in direction of rotation to 15° ATDC on 1984-89 models; 14° ATDC on 1990 and later models.



2. Loosen mounting bolts (arrows) at injection pump flange and bracket (arrow).



Bracket mounting bolt

3. Connect indicator (008) and clamp (009) to battery positive terminal.

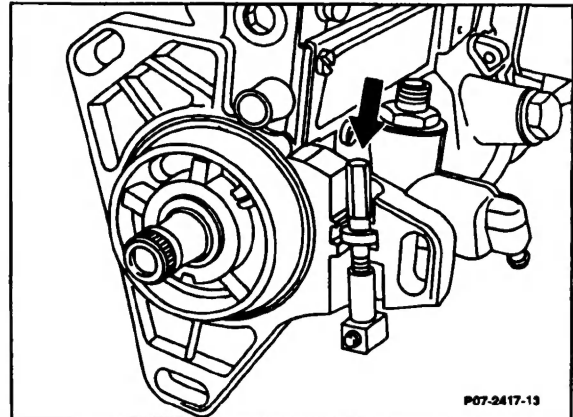
4. Pivot injection pump by turning adjusting screw until both lamps A and B light.

### Adjustment screw direction

Right = Retard injection timing  
Left = Advance injection timing

### RI nominal value:

15° ATDC on 1984-89 models;  
14° + 0.5° ATDC on 1990 and later models.

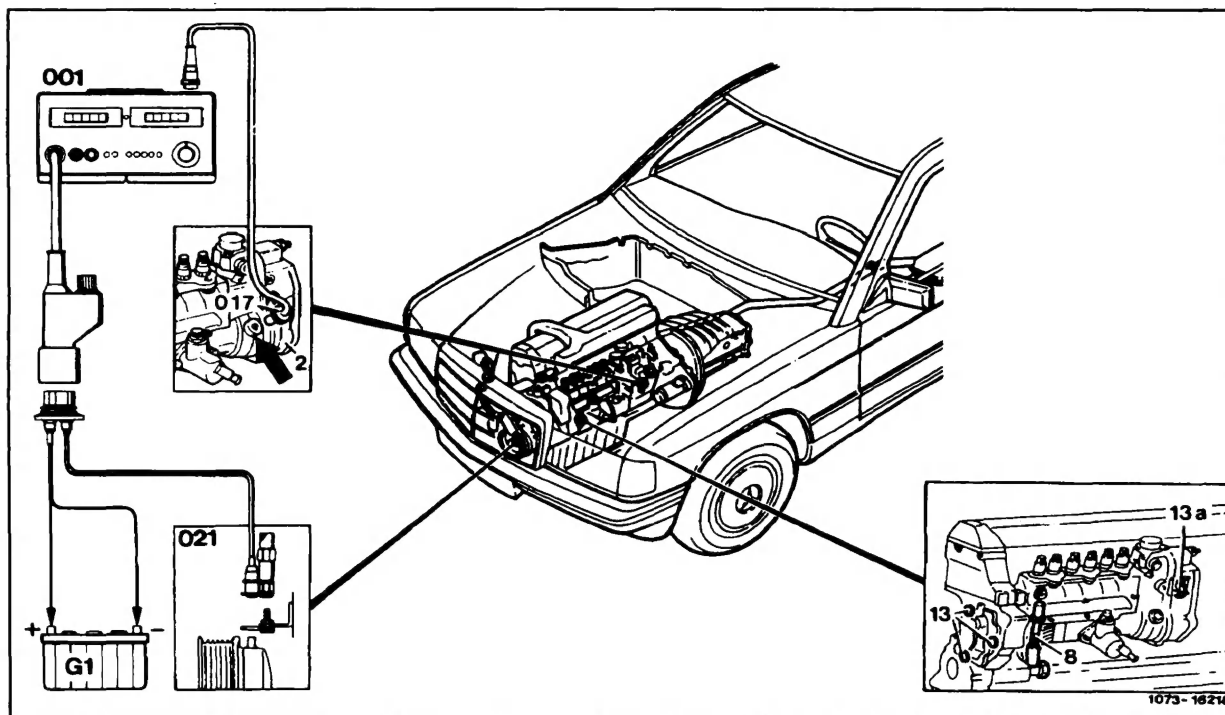


### Note:

If the adjustment range is inadequate, the pump must be repositioned. Refer to SMS, Job No. 07.1-200, Injection pump removal and installation.

5. Torque mounting bolts on injection pump flange and bracket to 20-25 Nm.
6. Remove position transmitter.
7. Install screw in plug, torque to 30-35 Nm.
8. Check regulating linkage, and adjust if necessary (SMS, Job No. 30-300).
9. Check for leaks with engine running.
10. Check engine oil level, and correct if necessary.

## Adjusting injection timing using digital tester (RIV method) - after checking (0760.2)

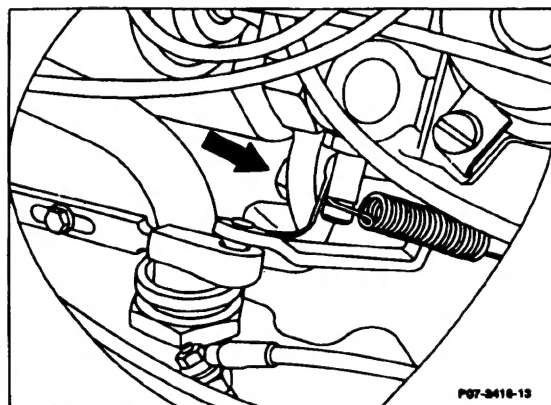
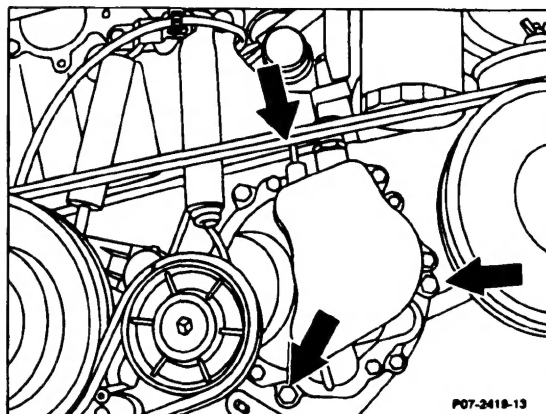


Injection pump mounting bolts (13 and 13A) at flange and bracket .....	loosen
Engine .....	run at idle speed
RI value (indirect injection timing) .....	adjust by turning injection timing adjustment screw (8)
Adjustment screw (8) direction	
Right = Retard injection timing	RI (reference impulse) adjusting value:
Left = Advance injection timing	refer to chart
Engine .....	shut off
Injection pump mounting bolts (13 and 13A) at flange and bracket .....	torque to 20-25 Nm.
Tester .....	disconnect
Plug (arrow) on governor .....	screw in and torque to 30-35 Nm
Regulating linkage .....	check, adjust if necessary (repair instruction SMS, Job No. 30-300)
Leak check with running engine .....	perform
Engine oil level .....	check, correct if necessary

**Note:**

Check injection timing before adjusting (0760.2)

1. Loosen mounting bolts (arrows) at injection pump flange and bracket (arrow)



Bracket mounting bolt

2. Run engine at idle speed.
3. Adjust RI value (indirect injection timing) by turning adjusting screw.

**RI nominal value:**

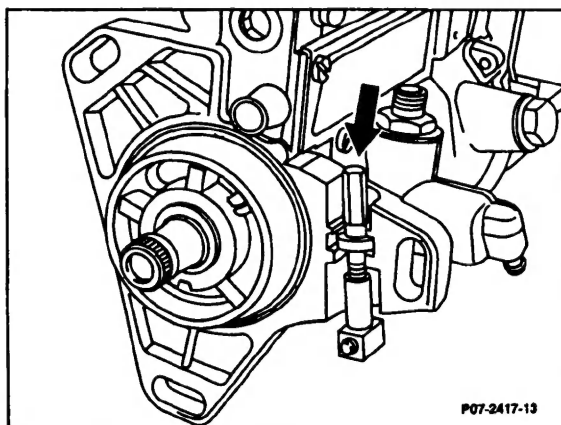
15° ATDC on 1984-89 models;

14° + 0.5° ATDC on 1990 and later models.

**Adjustment screw direction**

Right = Retard injection timing

Left = Advance injection timing



**Note:**

If the adjustment range is inadequate, the pump must be repositioned. Refer to SMS, Job No. 07.1-200, Injection pump removal and installation.

4. Turn engine off.
5. Disconnect tester.
6. Install screw in plug on governor and torque to 30-35 Nm.
7. Torque mounting bolts on injection pump flange and bracket to 20-25 Nm.
8. Check regulating linkage, and adjust if necessary (SMS, Job No. 30-300).
9. Check for leaks with engine running.
10. Check engine oil level, and correct if necessary.